

*Please provide the following information, and submit to the NOAA DM Plan Repository.*

**Reference to Master DM Plan (if applicable)**

*As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.*

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

**1. General Description of Data to be Managed****1.1. Name of the Data, data collection Project, or data-producing Program:**

National Coral Reef Monitoring Program: Benthic Complexity and Urchin Abundance at Climate Stations in American Samoa from 2015 to 2018

**1.2. Summary description of the data:**

Benthic complexity and urchin abundance data were collected as part of NOAA's ongoing National Coral Reef Monitoring Program (NCRMP). These data were gathered around American Samoa as a part of the NOAA Pacific Islands Fisheries Science Center (PIFSC), Ecosystem Sciences Division (formerly the Coral Reef Ecosystem Division) led missions from 2015 to 2018.

During these missions, the variables of benthic complexity and urchin abundance were recorded by SCUBA divers during visual surveys at NCRMP climate stations. A select number of climate sites were chosen per island in hard-bottom habitat at 15-m depths in a stratified random fashion.

To record benthic complexity, the divers ran a 15-m transect from the reference stake for the site and estimated two maximum vertical relief measurements per meter along the 15-m transect (based on an area of 0.5 m x 1 m to the left and 0.5 m x 1 m to the right of each meter on the transect) for a total of 30 measurements. The measurements were tallied into five substrate height bins, including 0-20 cm, 20-50 cm, 50-100 cm, 100-150 cm, and >150 cm. The total frequency for the five substrate height bins is 30 units for a 15-m transect. Maximum depth, minimum depth, and maximum vertical relief were also recorded for the climate station.

Free and boring urchin abundance was estimated within the climate station and recorded using DACOR, an abundance code based on visual estimation; dominant (D), abundant (A), common (C), occasional (O), and rare (R).

**1.3. Is this a one-time data collection, or an ongoing series of measurements?**

One-time data collection

**1.4. Actual or planned temporal coverage of the data:**

2015-02-15 to 2015-03-26, 2018-06-19 to 2018-07-16

**1.5. Actual or planned geographic coverage of the data:**

W: -171.09223299, E: -168.13792, N: -11.04568868, S: -14.559317

Extent of benthic complexity and urchin abundance surveys in American Samoa

**1.6. Type(s) of data:**

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*

Table (digital)

**1.7. Data collection method(s):**

*(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)*

Instrument: Not applicable

Platform: Not applicable

Physical Collection / Fishing Gear: Not applicable

**1.8. If data are from a NOAA Observing System of Record, indicate name of system:****1.8.1. If data are from another observing system, please specify:****2. Point of Contact for this Data Management Plan (author or maintainer)****2.1. Name:**

Annette M DesRochers

**2.2. Title:**

Metadata Contact

**2.3. Affiliation or facility:****2.4. E-mail address:**

annette.desrochers@noaa.gov

**2.5. Phone number:**

(808)725-5461

**3. Responsible Party for Data Management**

*Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.*

**3.1. Name:**

Hannah C Barkley

**3.2. Title:**

Data Steward

#### 4. Resources

*Programs must identify resources within their own budget for managing the data they produce.*

##### 4.1. Have resources for management of these data been identified?

Yes

##### 4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

Unknown

#### 5. Data Lineage and Quality

*NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.*

##### 5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

*(describe or provide URL of description):*

Lineage Statement:

Benthic complexity (i.e., substrate height) and urchin abundance survey method employed by the PIFSC Ecosystem Sciences Division (ESD) since 2013. ESD's use of the 5-category method for benthic complexity was adapted from the University of North Carolina at Wilmington's Protocol for Measuring Topographic Complexity. The category delineations for benthic complexity and urchin abundance are the same as those employed by ESD's fish team.

Process Steps:

- Climate Station/Site Selection: A select number of National Coral Reef Monitoring Program (NCRMP) climate stations per island were established in a stratified random fashion to be roughly equally spaced around the island along the 15-m contour on hard-bottom habitat and at least 1 km away from a river mouth or embayment.
- Maximum Vertical Relief / Substrate Height: At the NCRMP climate station SCUBA divers ran a 15-m transect from the reference stake. Along the 15-m transect tape, two maximum vertical relief measurements per meter were tallied (based on an area of 0.5 m x 1 m to the left and 0.5 m x 1 m to the right of each meter on the transect) for a total of 30 measurements. The total frequency # for the five substrate height bins should add up to 30 units for a 15-m transect. Maximum depth, minimum depth, and maximum vertical relief were also recorded for the climate station. These measurements are defined as: Maximum depth - deepest point in the NCRMP climate station Minimum depth - shallowest point in the NCRMP climate station Maximum vertical relief - height of tallest reef structure present within the NCRMP climate station.
- Free and Boring Urchin Abundance: Urchin abundance was estimated by conducting a visual census of free and boring urchins within the NCRMP climate station and was recorded using DACOR, an abundance code based on visual estimation: dominant (D), abundant (A), common (C), occasional (O), and rare (R).

For Free Urchins, DACOR categories are quantified as: D: 101-999 A: 51-100 C: 21-50 O: 6-20 R: 0-5 For Boring Urchins, DACOR categories are quantified as: D: 501-999 A: 251-500 C: 101-250 O: 26-100 R: 0-25

**5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:**

**5.2. Quality control procedures employed (describe or provide URL of description):**

The data is entered in an MS Excel spreadsheet, then quality controlled against the physical data sheets prior to the data considered final. Upon completion of the cruise, the data is migrated to Oracle database during which any errors are flagged based on pre-defined criteria.

**6. Data Documentation**

*The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.*

**6.1. Does metadata comply with EDMC Data Documentation directive?**

Yes

**6.1.1. If metadata are non-existent or non-compliant, please explain:**

**6.2. Name of organization or facility providing metadata hosting:**

NMFS Office of Science and Technology

**6.2.1. If service is needed for metadata hosting, please indicate:**

**6.3. URL of metadata folder or data catalog, if known:**

<https://www.fisheries.noaa.gov/inport/item/36099>

**6.4. Process for producing and maintaining metadata**

*(describe or provide URL of description):*

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: [https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC\\_PD-Data\\_Documentation\\_v1.pdf](https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf)

**7. Data Access**

*NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides*

*information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.*

**7.1. Do these data comply with the Data Access directive?**

Yes

**7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?**

**7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:**

**7.2. Name of organization of facility providing data access:**

National Centers for Environmental Information - Silver Spring, Maryland (NCEI-MD)

**7.2.1. If data hosting service is needed, please indicate:**

**7.2.2. URL of data access service, if known:**

<http://accession.nodc.noaa.gov/0159143>

<http://accession.nodc.noaa.gov/0187897>

[https://ecowatch.ncddc.noaa.gov/erddap/tabledap/CRCP\\_Benthic\\_Complexity\\_Urchin\\_Abundance\\_Pa](https://ecowatch.ncddc.noaa.gov/erddap/tabledap/CRCP_Benthic_Complexity_Urchin_Abundance_Pa)

**7.3. Data access methods or services offered:**

Data can be accessed online via the NOAA National Centers for Environmental Information (NCEI) Ocean Archive.

**7.4. Approximate delay between data collection and dissemination:**

Unknown

**7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:**

**8. Data Preservation and Protection**

*The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.*

**8.1. Actual or planned long-term data archive location:**

*(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)*

NCEI-MD

**8.1.1. If World Data Center or Other, specify:**

**8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:**

**8.2. Data storage facility prior to being sent to an archive facility (if any):**

Pacific Islands Fisheries Science Center - Honolulu, HI

**8.3. Approximate delay between data collection and submission to an archive facility:**

Unknown

**8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?**

*Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection*

The data is captured in several locations: physical data sheets, MS Excel spreadsheets, and PIFSC Oracle database. The physical data sheets are housed at PIFSC. The MS Excel spreadsheets are regularly backed up by the cruise data manager while at sea. The PIFSC Oracle database is regularly backed up by PIFSC ITS.

**9. Additional Line Office or Staff Office Questions**

*Line and Staff Offices may extend this template by inserting additional questions in this section.*